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Farm workers in Mexico carry bags of wheat in from the fields for storing.

USSR Meat Push Still On, U.S. Team Reports

Despite perennial uncertainty over its domestic production of feedstuffs, the USSR is moving ahead with plans to expand and modernize livestock output. Consequently, the USSR will probably continue to be a sizable importer of feedgrains, an anticipation already reflected in its agreement to import 6-8 million tons of U.S. grains a year through September 1980, and could continue to be an increasingly important purchaser of soybeans and other feed ingredients.

The interfarm complexes that comprise the heart of the USSR's livestock expansion program continued to receive emphasis through 1976, that year numbering 35 percent more than in 1975. As part of this shift toward modern livestock production, the USSR plans to boost output of poultry and swine in particular, intensify dairy production, and even enlarge cattle feeding. To accommodate such expansion, the Soviets are to continue to enlarge their production and use of feed concentrates.

To assess progress made so far by this livestock-modernization program, a USDA-industry team recently visited a number of the USSR's interfarm livestock complexes and met with Government officials involved in the expansion program.[1]

The team found that the Soviet Government has made considerable strides in establishing the multifarm livestock complexes that it hopes will revolutionize USSR livestock production. Such complexes, composed of several State or collective farms grouped into large feeding units, were found to be taking hold in all the regions visited by the team, which include the RSFSR, Moldavia, the Ukraine, Krasnodar Kray, and the Bashkir ASSR.

These complexes today number around 2,000, compared with 1,700 in 1975, and 1,300 in 1974, and boast huge feeding operations. Some large swine complexes, for example, may eventually handle over 200,000 head.

So far, priority has been given to hog production, although poultry complexes are to receive considerable attention in the near future, with broiler production alone slated to grow four- to five-fold by 1980.

The hog complexes receive the bulk of the State feed supplies, including relatively complete rations with high levels of protein. In fact, they are for the most part totally dependent on State sources for feed supplies, so that their size and location do not hinge on availability of local grains or oilseed meals.

These hog complexes are basically units of a multiple of 54,000 head. So far, the maximum size has been 108,000 head (annual output), but one 216,000 head facility now under construction near Gorkiy and six similar-sized units are being studied. Some thought has been given to even larger complexes, but there are no immediate plans for constructing them.

Cattle complex size, in contrast, has been largely dependent on the availability of local roughage, with cattle continuing to receive only a small proportion of the concentrates fed in the USSR.

The team found that the USSR had steadily increased its use of feed concentrates since 1965, but is now apparently caught in the bind of not having enough domestic feedstuffs—especially proteins—to make further desired advancements.

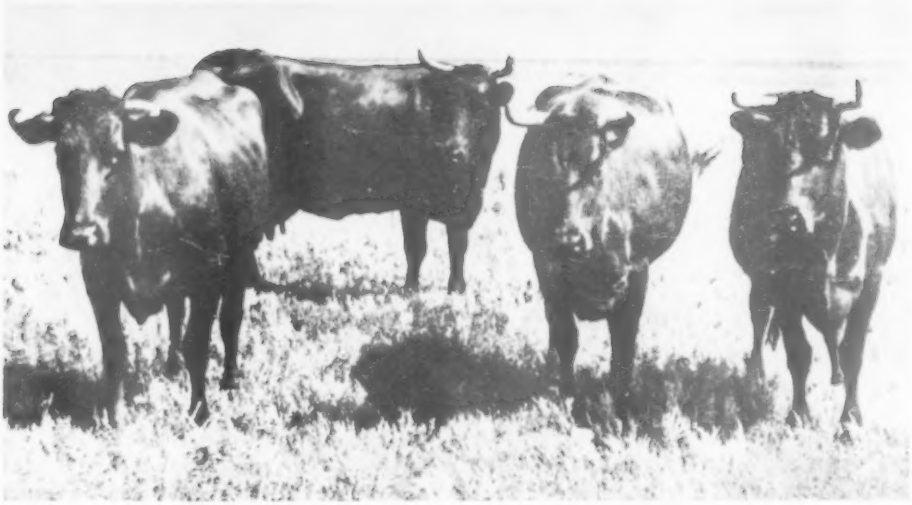
Soviet use of concentrates[2] as a percent of total rations by classes of livestock during 1965 and 1975 is compared below:

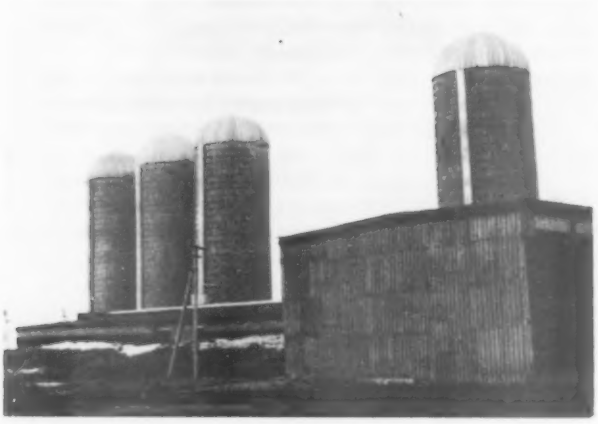
	1965	*1975*
All classes of livestock	25	31
Cows	12	21
All cattle	11	20
Hogs	61	69

While forage and succulent feeds are produced large-

[1] **Team members included John Riesz (team leader), Larry Panasuk, and Abdullah Saleh of the Foreign Agricultural Service; Perry Riley of the U.S. Feed Grains Council; and Phillip Sisson of the Quaker Oats Co.**

[2] **The Soviet definition of concentrates refers to grains, and dehydrated forage meals and other protein meals.**





Clockwise from top: Red Steppe dual-purpose cattle found in southern areas of the USSR; at one Moldavian farm visited by the team, hay is channeled into a pelleting machine to be combined with grain for a balanced feed ration; modern feed storage facilities at another farm visited by the team in the Bashkir Autonomous Socialist Soviet Republic.

ly on state and collective farms under supervision of the Ministry of Agriculture; processing of these feed concentrates is done by the Ministry of Procurement, based on feed formulations developed by livestock and feed research institutions in cooperation with the Ministry of Agriculture.

Of the mixed feeds produced by the Ministry of Procurement in 1975, 58 percent went for swine production; 25 percent for poultry; 16 percent for cattle, sheep, and rabbits; and 1 percent for fish. This pattern is expected to continue through 1980, except that the share for poultry will expand to around 28 percent.

To improve feeding efficiency among animals, State and collective farms are being encouraged to use Ministry of Procurement processing facilities, where available, to better process and mix feeds, and thus produce only balanced rations. Processed feeds can be obtained in this manner if no processing facilities exist on a local farm, or a farm can deliver other grains such as wheat and obtain prepared feeds in return.

The following grain and protein percentages, by type of livestock, are preferred in the Ministry-of-Procurement feeds:

	Grain	*Protein*
Swine	50	17
Cattle	40	20
Poultry	70	17

The preferred grains in mixed feed preparations for cattle are barley and corn, followed by wheat, millet, and oats; for hogs, corn followed by barley; and for poultry, corn followed by wheat and millet.

Because of its relatively small soybean crop—and a dearth of oilseed meal—the USSR uses dry peas as a major protein source outside

of the more southerly producing areas where sunflowerseed and oilseed meal are major protein sources. Peas, which are broadly adapted to the USSR climate, have protein levels averaging 20-24 percent, versus the reported 30-32 percent for soybeans grown in the USSR.

The Soviets also attempt to supplement their frequent shortages of grains and protein with other feed ingredients such as sugarbeet pulp; molasses; brewers' byproducts; potato starch extraction residue; urea; and microbiological proteins, and other synthetic materials, including vitamins.

This stress on modern livestock production and feed technology as a means of boosting meat output was set back recently, when the country's grain shortfall in 1975 led to the biggest cutback in meat output in 5 years. In 1976, Soviet meat output dropped 10 percent below that of 1975, totaling only 13.4 million tons, but meat imports totaled only about 400,000 tons after reaching a record 515,000 tons in 1974 and 1975. In the earlier year, however, imports were mainly to provide outlets for East European beef shut out of the European Community and other western markets, whereas in 1976, they came largely from Free World such as Oceania as a result of increased needs within the USSR. Hard currency limitations apparently did not permit larger imports in 1976 from these sources.

In any case, the Soviets today are confronted with the need for large imports of both meat and grains, since per capita meat comsumption, at 54 kilograms in 1976, is well below the USSR Academy of Sciences' recommended 82 kilograms.

Despite the 1975/76 setback, the Soviets seem determined to move ahead with their livestock expansion, if at a more cautious rate and with more modest goals than in the past. But they also continue to face a number of problems, associated in part with livestock industry modernization.

One such problem, the team reported, is the USSR's growing dependence on a more stable supply of feed concentrates, as well as on more and better grain processing and storage.

Past experiences indicate that this stability will be difficult to achieve with Soviet supplies alone, since the country is subject to wide and frequent fluctuations in grain and oilseed output. For instance, devastating crop failures in 1972 and 1975 sent the Soviets into the world market for over 20 million tons of grain a year in 1972/73, and 1975/76, thus establishing the USSR as a pivotal factor in world grain trade. The USSR likewise has had trouble with its sunflowerseed crop—which in the last 2 years has totaled only about 5 million tons, compared with planned output of 7.5 million. And it has made little headway in expanding the production of soybeans.

Yet large capital investment in livestock modernization demands a more constant supply of quality concentrates. Grain shipments to the feed mills must continue, so that in years of shortages the country will have to depend more heavily on the import market for grain and protein.

Limited supplies of domestically produced feed ingredients likewise have made it difficult for the USSR to achieve maximum performance levels from its livestock—and will continue to restrict feeding rates in the future as increased livestock numbers call for still-larger inputs of grains and oilseeds.

The team also found productivity on livestock complexes hindered by other problems, including manage-

Livestock Totals Up On USSR Farms Led by Poultry and Hops

Because of favorable production conditions and larger supplies of feed and grain for livestock, livestock numbers of most classes of livestock on Soviet collective and State farms are larger this year than in the recent past.

As of April 1, 1977, cattle and cow numbers were both up 3 percent from those of a year earlier. Similarly, sheep and goats were up 2 percent. Poultry and hog numbers made the largest percentage gains, however, rising 18 and 17 percent, respectively, over the depressed year-earlier levels.

Cattle and cow number gains during March remained the same as average gains during March 1973-76. The gain in poultry numbers, however, was almost 10 million birds less than the 1973-76 average. Hog numbers were maintained during March 1977, whereas in most recent years they have decreased. On the other hand, sheep and goat numbers made somewhat better gains than the 1973-76 average.

Growth in total inventories of most categories of livestock on State and collective farms—with the exception of poultry and sheep and goat inventories—was faster in the first quarter of this year than in the same periods of the preceding 4 years. Growth in total cattle inventories from January 1 to April 1, 1977, was almost double the 1973-76 average gains. Cow numbers were up by half a million head or 2 percent, whereas in most recent years the numbers have increased little if any in the first quarter.

The unusual growth in cattle as well as cow numbers in the first quarter of this year occurred in the month of January. The growth in sheep and goat inventories made some strides and was equal to the peak first-quarter growth in 1974 and 2.5 million head more than 1973-76 average growth.

Total hog inventories, which normally drop during the first quarter, gained by 1.8 million head this quarter. The average decline during the same periods in 1973-76 was 800,000 head. This indicates that the rebuilding of the hog population is continuing. The expansion of poultry inventories is also accelerating but at a considerably slower rate than average. The total gain of 75.5 million head this quarter was one-fifth less than the average gain during the first quarter of 1973-76.

Good increases in livestock inventories can be expected during 1977 if current favorable conditions continue. Hog numbers may be rebuilt to the record January 1975 level. □

—Angel O. Byrne, ERS

ment, inadequate mixing of grains, and possible inferior genetic traits, particularly in cattle.

To a fairly uniform extent, each of the livestock operations visited showed good ability to meet the desired planning goals. Small-scale as well as rather enormous enterprises (including some with over 100,000 market hogs) all claimed to be living up to plan.

However, feed conversion efficiency appeared to be below that evidenced in Western Europe and the United States. The team indicated that the following feed management factors might contribute to this difference:

- Failure to mix roughages and concentrates before feeding;
- Poor grinding of roughages—to the extent that 5-10 inch pieces of corn stalks and straw were seen;
- Low concentrate levels; and
- Failure to keep mixed ration in front of the cattle—although the cattle seen were not frequently out of feed, the feed they had was very coarse roughage.

The apparently widespread Soviet practice of not thoroughly mixing roughage and concentrate prior to feeding the animals allows cattle to eat selectively and thus perform below optimal standards. Grain is ground too fine and roughages too coarse for proper blending.

Of course, in times of feed shortages the quality and level of concentrates and the protein use drop in an attempt to maintain herd size. Cuts in herds (but preferably not breeding stock) will occur in years of critical shortages. The country also responds to shortages by relocating cattle to the extent possible in areas where feed is available and by encouraging movement of feed from surplus to deficit areas of the Soviet Union. □

USSR Trade Gains

Total USSR trade turnover reached 56.8 billion rubles in 1976, a 12-percent increase over 1975, according to a report in *Ekonomicheskaya Gazeta*, the Soviet economic weekly. The value of Soviet exports reached 28.1 billion rubles, at 17-percent increase over 1975's, while imports totaled 28.7 billion rubles, up 7 percent from the preceding year.

Although increases were recorded in value of Soviet imports from and exports to the three groups of trading partners—the centrally planned countries, the industrially developed countries, and the developing countries—the share of trade with each of these groups shifted only slightly.

The *Ekonomicheskaya Gazeta* report did not give comprehensive, detailed data on agricultural trade, and grain trade was not reported. Soviet imports of several selected products in 1976, however, generally declined in comparison with 1975's.

The developing countries are the USSR's main suppliers of several tropical products, including coffee, cocoa beans, tea, and fruit. Raw sugar imports, however, come largely from Cuba. Much of this import trade is in payment for Soviet technical and economic assistance or other Soviet services or products.

(U.S. exports of grain to the USSR in 1976 are estimated at 11 million tons. The United States also exported 579,000 tons of soybean to the USSR last year.)

The Soviet Union also plays a significant role in the world raw materials and energy market. According to Soviet data, in 1976 the USSR was the world's leading exporter of cast iron, chromium ore, and sawed timber; the world's second leading exporter of cotton fiber; and the world's third leading exporter of natural gas and iron ore. In 1976, the Soviets exported 111 million tons of petroleum, 25.8 billion cubic meters of natural gas, and 11.6 billion kilowatt hours of electricity.

During talks in June 1977, the Soviets reported that imports of some industrial products from the United States would be sharply lower this year than in 1976. In 1976, U.S. nonagricultural exports to the USSR totaled $819 million, up close to one-fifth from the $700 million exported there in 1975.

Based on a report by Judith G. Goldich, economist with the Foreign Demand and Competition Division, ERS.

USSR Imports of Selected Agricultural Products, 1975 and 1976

[In 1,000 metric tons]

Product	1975	1976
Coffee	60	44
Cocoa beans	156	134
Tea	156	60
Meat and meat products	515	359
Eggs (million)	767	654
Raw sugar	3,200	3,300
Fresh fruit	860	871

USSR Aggregate Trade, 1975 and 1976

[In billion rubles[1]]

Region	USSR exports		USSR imports	
	1975	1976	1975	1976
Centrally planned countries[2]	14.6	16.5	14.0	15.1
Industrially developed countries[3]	6.1	7.9	9.7	10.8
Developing countries[4]	[5]3.3	3.7	3.0	2.8
Total	24.0	28.1	26.7	28.7

[1]The average official exchange rate for the ruble in 1976 was $1.33. At this rate, the ruble is generally considered overvalued. [2]Including Bulgaria, Cuba, Czechoslovakia, the German Democratic Republic, the Mongolian People's Republic, Poland, and Romania—all members of the Council for Mutual Economic Assistance—as well as the Socialist Republic of Vietnam, Korean People's Democratic Republic, People's Republic of China, and Yugoslavia. [3]Including primarily the United States, West Germany, Finland, France, Great Britain, Italy, Japan, Netherlands, and Switzerland. [4]Including primarily Algeria, Argentina, Brazil, Egypt, India, Iran, Iraq, Nigeria, and Syria. [5]Reported, apparently in error, as 3.7 million rubles.

Source: 1976—*Ekonomicheskaya Gazeta*, #18, April 1977; 1975—*Vneshnaya Torgovlya SSSR v 1975 g.* Moscow: Statistika, 1976, p. 8.

Mexico's Farm Exports: Anti-Inflation Weapon

By Richard S. Welton

Mexico's economy spent most of 1976 recovering from a devaluation of the peso—the first in 22 years. Export returns gained from petroleum, coffee, and various farm exports in the first half of the year were quickly offset by the devaluation. Mexico's economic outlook for 1977 hinges on many factors, including further adjustment to the devaluation, the country's inflation rate, and how quickly investment recovery takes place. Agricultural performance will also have a strong impact.

The year 1976 was a difficult one for Mexico's economy. While larger agricultural exports and gains in extractive industries of mining and petroleum made some improvement in the country's inflation rate and trade balance during the first half of the year, confidence in the economy was badly shaken by the devaluation of the peso in September and October following 22 years of currency stability.

No final growth figures are available yet for Mexico's agricultural sector in 1976; however, it is unlikely that the farm sector grew at a rate above the 2 percent given for the economy as a whole. In fact, preliminary reports indicate that total crop production may have decline in constant value terms.

The outlook for the Mexican economy in 1977 depends on adjustment to the devaluation, the rate of inflation, and how soon investment recovery takes place. Aside from the weather, agricultural performance in 1977 will depend to a great extent on the restoration of confidence in the private farm sector.

(Expropriation of some 100,000 hectares of prime wheat growing land in Sonora at the end of the Echeverria Administration aggravated apprehension on the part of small private landowners to the point of discouraging investment in commercial farming.)

Mexico's total agricultural exports in 1976 are projected at $1.03 billion, up 10 percent from those of 1975, but slightly below the 1974 total. Exports to the United States—Mexico's chief trading partner—increased from $509 million in 1975 to $711 million in 1976. Much of the gain was the result of higher coffee prices that boosted export sales to the United States from $138 million in 1975 to $268 million in 1976. Coffee is now Mexico's leading agricultural export commodity and is second only to petroleum as an export earner.

There was also a significant recovery in Mexico's exports of beef and feeder cattle in 1976, as the peso devaluation made U.S. prices attractive to Mexican exporters. Beef exports to the United States—at 23,200 tons, product weight—were 66 percent higher than during 1975. In addition, 69 percent of the beef exports originated from Mexican cattle, as maquila beef exports (beef from U.S. cattle slaughtered in Mexico) were lower, accounting for 31 percent. In the first quarter of 1977, maquila beef exports were less than 3 percent of total beef exports. Exports of feeder cattle to the United States increased during 1976 to 508,000 head, compared with 196,100 head during 1975.

In addition to coffee, livestock, and livestock product exports, other top export earners for Mexico in 1976 included raw cotton (valued at $241 million), tomatoes (valued at $137 million), and other fresh fruits and vegetables (valued at $79 million).

At the other end of the export scale, sugar exports—the leading export commodity in 1974—dried up completely in 1976, and strawberry shipments fell sharply owing to frost damage.

The peso devaluation should encourage expansion in exports in 1977, with sharp gains in coffee, cotton, and fruits and vegetables. On the import side, increased trade is forecast for grains and oilseeds and products. This should more than offset a projected decline in imports of breeding cattle and border trade items—including processed foods — brought about by the peso devaluation. The U.S. share of the Mexican market for farm products in 1977 is expected to remain at the 70-75 percent level.

However, while the devaluation will tend to encourage increased export product output in 1977, there are some factors working against increased production, such as insecurity regarding land tenure, tight credit, and export taxes. In addition, land available for export crops will be limited by the need to expand grain and oilseed area to meet domestic needs.

Mexico's imports of agricultural products fell sharply in 1976 to an estimated $500 million, with imports from the United States accounting for $370 million. Grain imports from all sources plunged from $570 million in 1975 to $126 million in 1976, as improved growing conditions during the past two seasons reduced the heavy import requirements of 1974/75.

Whereas production of some crops showed an im-

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An irrigation dam in the Mexican State of Guanajuato. This is just one part of Mexico's major dam-building program designed to benefit agriculture. Over 90 percent of Mexico's wheat crop is irrigated, as are vegetables and safflower.

provement over 1975 levels, dry weather in the northwest of Mexico restricted irrigation supplies and limited production of soybeans and rice, (*Foreign Agriculture*, May 2, 1977) while heavy rains in midsummer damaged crops such as sorghum, corn, and beans in the central plateau. Overall, however, weather was probably a positive factor for Mexico's 1976 agricultural production, as drought was generally limited to the northwest area.

Following is a summary of production of Mexico's major commodities during 1976, along with forecasts for the 1977/78 season:

Grain and feed. Grain production during 1976 had mixed results and, as usual, rainfall was the foremost element affecting production. Corn output rose slightly to 9.6 million tons in 1976/77, compared with 9.3 million tons a year earlier. Higher production is credited to improved yields that were the result of conducive weather and continued introduction of improved seed varieties. Forecasts for corn output in 1977/78 are currently placed at 9.7 million tons, with imports of 1.4 million tons likely.

Total wheat and flour production for the 1976/77 season was a record 3.35 million tons—17 percent higher than that of a year earlier. Owing to the increase in this year's expected production, sufficient quantities of wheat should be available to meet consumption needs until the 1977 crop is harvested.

For the 1977/78 season, however, a drop of roughly 30 percent is anticipated, owing to a large decline in planted area, yield losses from rust, drought, and late planting. With output set at only 2.3 million tons, imports of 700,000 tons are considered possible.

Production of sorghum during the current year has been placed at 3.1 million tons, slightly below last year's output. Sorghum area harvested for 1976/77 declined in relation to that of 1975/76. Production in 1977/78 is projected to rise, however, to 3.7 million tons.

Livestock and poultry feed account for nearly 98 percent of all domestic sorghum consumption. Because feed costs are controlled by the Government, feed price increases tended to lag cost increases last year in response to shorter supplies of soybeans and cottonseed. Therefore, mills tended to limit the amount of these protein supplements in feed rations and add more sorghum.

Rice production declined in 1976/77 to 300,000 tons, compared with 480,000 tons produced last year, as lower availability of water in irrigation dams in Sinaloa reduced yields. However, an increase in planted area in the States of Veracruz, Oaxaca, and Guerrero should boost output in the 1977/78 season to 400,000 tons.

Dry bean output has been estimated at 1.08 million tons for 1976/77, compared with 1.13 million last year. In 1977/78 production should total 1.11 million tons.

Oilseeds and products. With the exception of a slight increase in cottonseed output, production of Mexico's major oilseed crops last year was below that of 1975/76. Total oilseed supply for 1976/77 is placed at 2.1 million tons—8 percent below total supply a year earlier. Despite projected imports of nearly 600,000 tons (soybean equivalent) the oilseed supply situation remains rather tight for 1976/77.

More than any other oilseed, soybeans showed the largest reduction for 1976/77 to 280,000 tons, owing to low reservoir water levels in principal growing areas. In order to meet domestic needs, sizable imports are projected for 1976/77. Since September 1, 1976, CONASUPO (a Government import agency) has imported 358,000 tons of soybeans, and further imports—possibly 350,000 tons—may be necessary.

"The devaluation should encourage expansion in exports in 1977, with sharp gains in coffee, cotton, and fruits and vegetables. On the import side, increased trade is forecast for grains and oilseeds and products."

During 1977/78, soybean output is expected to be above the 1976/77 level, but still well below production in 1975/76 of 625,000 tons. Larger cotton production and limited water supplies, however, may limit soybean planting in the northwest. Consumption levels for 1977/78 remain uncertain, as the Government decides whether to import sufficient quantities of soybeans to maintain previous consumption levels or looks for alternative oilseed supplies.

Although cottonseed production increased by 9 percent to 370,000 tons in 1976/77, Mexico's total supply of cottonseed has been reduced by a drawdown of stocks in 1975/76. Cottonseed output in 1977/78 is predicted to increase in line with expected growth in cotton production. Larger cottonseed crops will help alleviate the country's oilseed deficit and cottonseed imports will likely be down sharply for 1977/78.

Safflower output declined 40 percent in 1976/77 to 320,000 tons, largely as a result of reduced area as some producers shifted land to wheat in late 1975. The outlook for 1977/78 production is one of growth, with outturn possibly reaching 410,000 tons.

Cotton. Mexico's cotton production—at 1.0 million bales—was 11 percent higher in 1976/77 than during last season, owing chiefly to a 7 percent increase in area to 254,000 hectares.

Although cotton prices had risen in January 1976, producers were reluctant to increase area significantly, as they were not convinced of a continued rise in prices, and returns from alternative grain and oilseed crops were more assuring.

Cotton consumption for 1976/77 is expected to be roughly 700,000 bales—12 percent less than in 1975/76, owing to a general weakening in domestic demand that is projected for the balance of the year.

Textile mill consumption was at a standstill for a while after the devaluation, as a result of uncertainty regarding prices for yarn, resistance to high prices for ginned cotton, and requests for higher wages from laborers.

The outlook for 1977/78 cotton production is bright, as some wheat land has been shifted back to cotton, and devaluation has boosted peso returns to growers. Preliminary estimates are placed at 1.4 million bales, as a result of a 50-percent area increase to 375,000 hectares. Such an increase is possible, given the shortage of water for double cropping wheat and soybeans, and lowered wheat area.

Prices of cotton to textile mills will likely be met with continued competition from manmade fibers, whose use rose 16 percent in the first 10 months of 1976. Increased manmade fiber competition may release more cotton for the export market and dampen domestic cotton consumption for 1977/78.

Dairy, livestock, and poultry. The 1976 rainy season was reportedly the best in years for many grazing areas of Mexico's Central and Northern Plateaus, and the current outlook for 1977 conditions is favorable.

January 1, 1977, cattle numbers are estimated at 10.8 million head of dairy cattle, 15.0 million head of beef cattle, and 2.9 million draft animals. Beef cattle numbers are down primarily in the northern states following difficulty in selling in the U.S. market in 1974/75.

Mexico's 1976 beef production is estimated 986,000 tons, 11 percent higher than that of 1975. Current estimates for beef output in 1977 are placed at 1 million tons.

Hog production increased slightly in 1976 and hog numbers on January 1, 1977, stood at 13.2 million head (13 million a year earlier). Pork production in 1976 is estimated at 400,000 tons and forecast at 412,000 tons during 1977.

Mexican beef exports to the United States totaled 23,199 tons in 1976, consisting of maquila beef (7,212 tons) and Mexican beef (15,988 tons). Meat exports during the first 4 months of 1977 were 10,390 tons—63 percent higher than during the same period a year ago. Total Mexican beef exports to the United States in 1977 are currently forecast at 28,000 tons.

Mexico exports small quantities of meat to other countries beside the United States, primarily Japan, which took 130 tons of beef, 2,495 tons of horsemeat, and 2,223 tons of pork in 1976.

The Mexican cattle export quota to the United States during September 1975-August 1976 totaled 553,000 head, and the export quota during this season is set at 518,000 head. U.S. imports of live cattle in January were 78,000 head, but were down to 38,000 head in February.

Mexican cattle imports in 1976 were impeded by the devaluation (which almost doubled the price of imported cattle) and new regulations for beef bull import permits. Exports of U.S. dairy cattle to Mexico were 39 percent lower (17,000 head) in 1976, and exports of beef breeding bulls—at 1,311 head—were 70 percent lower. Cattle exports for maquila slaughter were also down—30 percent to 56,150 head. But exports of U.S. beef breeding cattle (18,837 head) were more than 3 times the 1975 total.

Although dairy cow numbers and milk production (6.2 million tons) continued to expand in 1976, Mexico remained in a dairy deficit position. Imports of nonfat dry milk are estimated at 52,000 tons in 1976, and current forecasts

indicate imports of 70,000 tons during 1977.

Broiler production declined 5 percent in 1976 to 220,000 tons, while egg output rose 5 percent to 7.7 million eggs. For 1977, output of these two commodities is forecast at 237,000 tons and 8.1 million eggs, respectively.

Fruits and vegetables. Fresh fruit and vegetable exports increased from 662,800 tons in 1974/75 to 749,100 tons in 1975/76. Items showing the greatest gains were cucumbers, peppers, watermelons, and tomatoes.

Strawberry production dropped sharply in 1975/76 owing to reduced area and frost damage. Exports of frozen berries dropped from 51,081 tons in 1975 to 26,365 tons in 1976. During the same period, exports of fresh strawberries fell from 20,458 tons to 6,600 tons.

Production of processing tomatoes is estimated at 170,000 tons, 19 percent less than in 1975, owing to a freeze in the growing area of Bajio in February 1976. The breakdown of commodities produced from processing tomatoes is estimated at 50 percent paste, 30 percent puree, 10 percent catsup and sauce, and 10 percent peeled tomatoes and juice.

Processed tomato product output was mainly geared to the domestic market, owing to high carryover paste stocks and low international prices. Exports of tomato products—primarily paste—to the United States in 1976 are estimated at 6,000 tons.

Favorable weather conditions were reported for pineapple, and 1976 output is estimated at 300,000 tons, 14 percent above that of 1975. Exports are estimated at 18,000 tons of processed pineapple (14,000 tons to the United States) and 17,000 tons of fresh fruit.

The 1976/77 export outlook for fresh fruits and vegetables is better than that of 1975/76. Shipments picked up sharply in January following the freeze in Florida, and total exports for the season may be up 10-20 percent. Strawberry production and exports should return to normal levels this season.

Coffee. Favorable weather conditions increased Mexico's 1975/76 coffee output to a record 4.2 million bags. Exports were also higher—2.8 million bags—and U.S. import statistics indicate shipments during calendar 1976 totaled 1.869 million bags, 12 percent above the calendar 1975 total of 1.662 million. Carryover stocks are believed to be minimal. Exports prices were much higher and the value of exports totaled $343 million, compared with $184 million in calendar 1975. The current crop is expected to be lower than that of last year, but export returns will be up owing to higher prices.

Sugar. No final figure for 1976 sugar production has been published by the Sugar Industry Commission; however, latest data place total sugar output—including raw, semirefined, and refined sugar converted to a raw value basis—at 2.722 million tons, less than 1 percent below output in 1975. Sugar output for 1977 is forecast to be slightly lower as a result of wet weather.

Sugar consumption for 1975/76 is estimated at 2.65 million tons—a record level for Mexico. Even though production remained close to domestic consumption levels, the lack of sugar exports during 1976 should provide Mexico with adequate stocks to meet domestic needs. Imports of sugar are not anticipated in 1977, as higher prices should dampen domestic consumption.

Tobacco. While it is still too early to predict final tobacco production in 1977, preliminary estimates put the total at 52,000 tons, compared with 58,000 tons in 1976. □

U.S. Farm Exports May Hit $24 Billion in 1977

Strong first half performance indicates that U.S. farm exports may reach $24 billion during fiscal 1977, more than $1 billion above the 1975/76 value. Early estimates show some declines may be experienced in 1978.

Growth commodities this year are cotton, oilseeds and oilseed products, livestock products, fruits, nuts, and vegetables.

During the first 6 months of the fiscal year, export unit values were sharply higher for many of these products.

Soybean and product exports are continuing strong despite the short 1976 U.S. crop. Soybean oil exports for the 1976/77 marketing year are now estimated at 748,000 metric tons, up 68,000 tons from the estimate on May 11, following a reappraisal of vegetable oil import requirements by India.

U.S. grain exports are smaller this year. Export volume is likely to drop by about a tenth, and the grain export unit value may be 10 to 15 percent lower in fiscal 1977.

Substantial increases are expected in fiscal 1977 in U.S. exports to the Middle East; East and Southeast Asia, including Japan; Western Europe; and Canada.

Exports to the USSR and South Asia are projected well below last year's levels. U.S. agricultural exports to South America are also declining this fiscal year.

Although 6 months of the fiscal year have passed, uncertainty remains about the final level of U.S. agricultural exports. Crop developments during the summer months will influence both price levels and export sales.

High coffee prices are causing a dramatic jump in the value of U.S. agricultural imports during fiscal 1977, which are seen going to $13.6 billion, compared with $10.5 billion the previous year. The farm trade balance—favorable again—is estimated at $10.4 billion. Cocoa, rubber, and tea prices are also sharply higher this year.

In contrast, imports of competitive products may show little change in fiscal 1977 with sugar prices significantly lower, and smaller import volumes expected for meats and vegetable oils.

Preliminary indications in fiscal 1978 point to some decline in U.S. agricultural trade. Early prospects for 1977 world production are generally favorable; and, if these prospects are realized, demand for U.S. farm products may be lower.

Depending upon the outcome of 1977 crops in the United States and abroad, U.S. agricultural exports during fiscal 1978 could reach either $27 billion or drop to $20 billion. Agricultural imports are expected to total about $12-$13 billion next year.

The world economic situation has continued to show gradual improvement, although the slowdown in economic activity during the latter part of 1976 is still evident in the statistics available for early 1977.

The volume of total world trade recovered strongly in 1976, advancing 11 or 12 percent, following the setback in 1975. Projections are for an 8- to 9-percent rise in 1977. □

Turkey's Poultry Industry Growing

By Yusuf Z. Durusoy

For the past quarter century, Turkey—with U.S. assistance—has been changing its poultry industry from a village-oriented project to a commercial one aimed at supplying the country's major cities and towns. Turkey's imports of U.S. chicks are minimal at the present time, but as the industry grows, it is likely that Turkey will boost its purchases of U.S. chicks and may start to import U.S. hatching eggs.

After many years during which poultry was raised only by villagers, Turkey is developing a commercial industry whose need for imported birds may increase as the sector develops further.

Located near important population centers such as Izmir, Ankara, and Istanbul, a number of these sizable farms are improving their stock lines by importing some high-quality birds from the United States and elsewhere. The industry as a whole, however, imports relatively few U.S. chicks and no hatching eggs.

From a level close to zero 25 years ago, commercial production of chickens has risen so that it now constitutes 40-45 percent of total output. Chicken numbers are increasing by about a half million birds a year, mostly commercially produced broilers.

There are now about 40 million chickens and 2.5 million turkeys in the country. In addition, about 25 million broilers are raised commercially each year. Annual poultry meat output is about 72,000 tons and egg production is about 2.7 billion.

With a population topping 41 million and increasing at an annual rate of 2.6 percent, Turkey's annual per capita consumption of poultry is 1.8 kilograms for meat and 65 eggs, both extremely low.

From a retail price level higher than for red meat a few years ago, increased production has dropped poultry meat prices to a point where they are now about equal to those of beef, mutton or lamb. And as production climbs even higher—and if producers are able to shave input costs—the consumer price may fall to a point where it is less expensive to buy poultry meat than red meats.

One of the country's largest producers of poultry meat is located at Izmir, with production of about 12,000 tons annually. Its facilities and equipment compare well with those of most U.S. producers. Its primary markets are Izmir and Ankara. Another producer, largely selling eggs, is located at Istanbul and serves that region.

U.S. export data show that in fiscal 1976 Turkey bought 116,000 chicks from the United States, valued at $272,000. The year before exports totaled 59,000 chicks worth $113,000.

Turkey does not import poultry meat, table eggs or poultry feed. It also exports no poultry or poultry products, a situation that will continue as long as local demand is high and domestic production unable to meet it. Any increased in output would immediately be absorbed by the domestic market.

Major problems hampering the growth of the poultry industry include the short supply of commercially formulated feeds and the ratio between feed costs and the market prices of eggs and poultry meat.

The current price for layer feed is about 17 cents per kilogram, while the farm price per egg is about 6-7 cents each. The price of broiler feed is about 22-24 cents per kilogram and the price of eviscerated broilers is better at about $1.54-$1.65 per kilogram.

Only about 700,000 tons of processed feed are produced annually, 60 percent being used by the poultry industry, the rest by other commercial feeders. Because of this shortfall and the relatively high prices, many commercial poultrymen compound their own feeds. Almost all of the manufactured poultry feed is used by commercial farmers. Very little is used by the village producers.

Also keeping the industry from advancing faster are a shortage of foreign exchange necessary to import breeding stock in quantities large enough to really make a production breakthrough, and the lack of trained hatchery managers and workers having even a journeyman's knowledge of poultry raising.

The country's veterinary services, too, would find it difficult to cope with a widespread outbreak of poultry disease in Turkey.

Most poultry farms are run as appendages to other, more profitable ventures, so that in some cases they do not get the resources required for development on a large scale. And finally, the villager himself fails to see the good income possibilities from selling commercially raised poultry and fresh eggs.

But the incentive to solve these problems and further boost production is strong among some poultrymen. They know what has been done by producers in other countries. And they realize that if enough chickens and eggs can be produced to meet a larger part of the food demand in the major towns and cities at a reasonable price, they will be assured of good incomes. So it is likely that whatever solutions are found will be through the efforts of these men.

The poultry industry has progressed considerably since 1951 when the United States and Turkey signed a technical assistance agreement.

A U.S. poultry advisor arrived in Turkey shortly after the pact was signed, to examine the industry's possibilities. He found that almost all of the poultry was raised by villagers, who provided the chickens with scant shelter (and in many cases none), no feed, and no protection against diseases or parasites.

Flocks in general were barely large enough to provide a single family with meat and eggs, and only occasionally was there a small egg or poultry surplus for sale or barter. Average egg production per hen was about 70-75 eggs annually. (By contrast, the average laying rate in the United States in 1952 was 178 eggs per hen.)

There were only about 5,000 to 6,000 high-quality chickens, mostly Leghorns and Rhode Island Reds, kept on State farms for experimental purposes. The remainder

Mr. Durusoy is an agricultural specialist in the office of the U.S. Agricultural Attaché in Ankara.

View of poultry house on commercial farm near Istanbul, where imported parent stock is raised. Turkey is gradually developing a commercial poultry industry, which will probably result in increasing numbers of chicks and hatching eggs being imported in the future.

were mostly mongrels—scrawny, tough, and with poor laying averages.

And extremely few high-quality birds were being imported to strengthen existing lines.

Even flocks on the largest poultry farms—whether owned by the State or the private sector—were small, generally numbering about 300-400 chickens. And the country's most spacious incubators could handle only about 300 eggs at a time. For the most part, eggs were hatched by brood hens.

Poultry houses holding more than 50 chickens were rare. And growth of the industry was hampered by the lack of even a single manufacturer of poultry feeds. But in 1951, there was little need for such a feed source as the common practice was to make chickens hunt for their own sustenance.

During the winter, egg production fell to almost zero, and the only "fresh" eggs were those that had been stored until needed by submerging them in water containing lime. In the summer, when output was higher, the supply of fresh eggs in cities and larger towns was only slightly greater, because the marketing structure for eggs and poultry was weak and farmers sometimes held eggs for considerable periods of time before selling them to jobbers who took them to distant markets. This marketing method also put most of the profit from handling eggs into the jobber's pockets, giving the farmer little reason for enthusiasm.

A poultry section was established in the Ministry of Agriculture and a National Poultry Advisory Committee was founded to remedy these conditions. An appeal was made to the U.S. members of the World Council of Churches, who, in 1954, donated a planeload of 35,000 chicks. Another donated planeload followed 2 years later, and these two shipments formed the basis for Turkey's present commercial poultry industry.

Matured on State farms, the U.S. chicks provided offspring that were distributed to farmers throughout the country. Even today, the lineage of many of the country's Leghorn, New Hampshire, and White Plymouth Rock chickens can be traced to these donated chicks.

Because the Advisory Committee pushed a major construction program to upgrade facilities at State poultry farms, and incentives were provided to the private sector, the number of improved hatchery, brooder, and laying buildings increased, and more efficient incubators, feeding units, and heating apparatuses were built or bought. Also, several commercial feed mills were erected.

A disease control program was initiated by the Veterinary Department of the Ministry of Agriculture. And to disseminate disease-control and production information on a wide scale, numerous seminars, training courses, and field days were scheduled, and extensive use was made of radio broadcasts and instructional displays.

A number of Government technicians was sent overseas—particularly to the United States—to get training in various aspects of poultry raising. Later, groups of Turkish poultry farmers went to the United States, often staying 2 months to study U.S. production methods.

Thus, although the Turkish commercial poultry industry still has a way to go before it can meet the demand of an increasingly sophisticated market, it has made great strides in the past and is expected to make even more in the future. □

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Australia Ups Sugar Output and Trade

Australia's sugar production has reached unprecedented levels, and exports jumped more than one-third in 1976 over those of the previous year. The industry is hopeful that prices have turned the corner and will stabilize at higher levels in 1977.

For the first time in the history of the Australian sugar industry, the country's 33 mills have processed over 3 million metric tons of raw sugar. The final total for the 1976/77 crushing season was 3.4 million tons, which was 13.5 percent above the record set the year before. A record 23.3 million tons of cane was crushed.

The record-breaking harvest was largely owing to a substantial increase of 31,421 hectares in assigned cane areas. The total area harvested was up about 12 percent to 288,227 hectares. Conditions for the 1976 harvesting were excellent, compared with the year before when harvesting conditions were extremely wet.

The value of the cane crop in 1976/77 has been estimated at $A477 million, some 9 percent higher than that of the year before. The total revenue to the sugar industry was placed at about $A700 million compared with $A674 the year before. The Australian sugar industry was insulated to some extent from the sharp drop in world sugar prices by fixed prices on home market sales and firm prices for some 1.2 million tons sold under long-term contracts.

Exports of raw sugar increased 37 percent during calendar 1976 to 2.6 million tons. About 76 percent of the sugar produced in Australia is now exported.

The largest outlet for sugar in 1976 was Japan, taking 805,000 tons compared with only 265,803 tons the year before. The second largest market was Canada with 464,000 tons, followed in order by the United States, 377,000; the People's Republic of China (PRC), 225,000; Malaysia 214,000; and the United Kingdom, 178,000.

Some 1.2 million tons of export sugar are now sold annually under long-term agreements with New Zealand, Malaysia, Singapore, South Korea, and Japan. The remaining 1.4 million tons will have to be sold to other free world markets, making Australia by far the world's leading "free market" exporter of sugar.

However, Australia is facing serious problems with the price provisions in two of its largest long-term contracts with Japan and Malaysia, and is now negotiating with these two countries in an attempt to resolve these problems, most of which hinge upon the unusually high world sugar prices existing at the time the contracts were signed.

Australia will supply the PRC with 260,000 tons of raw sugar in 1977, and additional sales are possible.

The general outlook for the Australian sugar industry has improved somewhat with the devaluation of the Australian dollar last November. During 1976, world sugar prices on the London market fluctuated from a high of $344 per metric ton in May, to a low of $191 in December. Prices have since improved and are now about $232 (April 1977).

While no strong upturn in prices is forecast in the near future, the industry here expects prices during 1977 to stabilize at a higher level than during the past year. Australia is also hopeful that a new International Sugar Agreement will be negotiated during 1977, which will help give greater stability to sugar prices on world markets. The April 18-May 27 negotiations failed to reach an accord. However, there may be a further session later this year.

It is still too early to assess the size of the 1977 harvest and no official estimates have been made. The full effects of the flooding in northern Queensland have not been determined; however, early reports are that the losses could be heavy in some areas. The worst hit areas were in the Babinda and Innisfail districts. Although individual districts could suffer, the overall effects of the heavy rains have been beneficial.

Harvesting is scheduled to start in early June. An estimate at this point is that Queensland's sugar crop will yield about 3.1 million tons and that New South Wales will have about a normal crop. The total sugar crop may amount to 3.2 million tons. □

Based on a dispatch from Harlan J. Dirks, U.S. Agricultural Attaché, Canberra.